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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/330,096	06/11/1999	JUN ENOMOTO	1110-0240P	8973

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EXAMINER
MISLEH, JUSTIN P

ART UNIT	PAPER NUMBER
2612	8

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/330,096	ENOMOTO, JUN	
	Examiner	Art Unit	
	Justin P Misleh	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9* is/are allowed.

6)☒ Claim(s) *1 - 6, 8, and 10* is/are rejected.

7)☒ Claim(s) *7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 June 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

The Examiner handling future prosecution of this Application and authoring this Office Action would like to inform the Applicant that the Examiner handling the previous prosecution of this Application and authoring the first Office Action (Paper No. 6, 3/13/03) are different and all future communication regarding this Application should be directed to the Examiner authoring this Office Action. The Examiner's contact information can be found at the end of this Office Action.

Response to Arguments

1. Applicant's arguments with respect to claims 1 - 7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 2, 4, 5, and 10** are rejected under 35 U.S.C. 102(e) as being anticipated by Enomoto. For the following rejections please refer to figures 1 – 3 and columns 10 (lines 35 – 63), 11 (lines 35 – 52), 12 (lines 19 – 22), 13 (lines 5 – 68), 14 (lines 1 – 49), 15 (lines 44 – 55), and 22 (lines 5 – 14).

4. For **claims 1 and 10**, Enomoto discloses, a system for image processing wherein an image of a subject is projected through an imaging lens (not shown) and is recorded onto an imaging material (designated as film F). The system further comprises a scanning unit (12) that is configured to scan the above-stated imaging material, wherein the scanning unit includes a scanning lens (32), in which the image of the subject is projected through (focused by the scanning lens onto the CCD image sensor – 34), and an image processing unit (14) configured to correct aberrations of the imaging lens (see paragraphs nos. 4 and 5 below for further explanation).

5. Enomoto discloses a photo-finishing system in which an image of a subject has been captured, by means of an imaging lens (not shown) on a photosensitive photographic film (herein referred as film F) of any type including but not limited to APS film, 135 mm film, and/or 35 mm. The film is inserted into the scanning unit (12) and is scanned by means of a scanning lens (32), a light source (22), a diffuser (28), and a CCD image sensor (34). The captured film (film that has been imaged by the CCD image sensor is then input into an image processing unit (14) configured to correct aberrations of the imaging lens. To correct for the aberrations of the imaging lens, information that identifies the camera used to capture the subject image on the film F and the lens characteristics associated with that camera are supplied to the aberration correcting part (56) located within the image processing unit.

6. As shown in figure 3, the captured film is provided to the image processing unit by the scanning unit. The image processing unit accepts the captured film, stores it in an image memory (42) and sends it to the scanned image processing section (46). Information that identifies the camera used to capture the subject image on the film F and the lens characteristics

associated with that camera are supplied to the aberration correcting part by means of characteristics data supply subsection (60). The characteristics data supply section comprises an image memory for storing information about the lens characteristics associated with various camera models (see column 14, lines 4 – 14). Aberration correction is provided for lateral chromatic aberration, distortion aberration, defocusing, and/or decrease in the brightness of the edge of the image field (marginal lumination) and is performed on the captured film by the aberration correcting part based upon the camera and lens characteristics supplied by the characteristics data supply subsection (see column 17, lines 34 – 42). Hence, the image processing unit is configured to correct aberrations of the imaging lens.

7. In addition, Enomoto teaches, as stated in column 11 (lines 35 – 52), that the scanning unit is not the only applicable source of supplying image data into the image processing unit. Various image reading means, imaging means, and means of storing image data can be substituted as exemplified, *inter alia*, a digital camera or digital video camera. Enomoto teaches that the image processing unit and associated method of correcting aberrations are applicable with advantage to the image (image data) recorded optically with an imaging device such as a digital camera wherein the imaging lens is the taking lens of the digital camera.

8. Thus, Enomoto discloses, a digital image shooting device comprising: an image forming lens; an image sensor element; a data processing unit for processing an output signal from said image sensor element into digital image data; an image memory for storing the digital image data and a lens characteristic relating to the image forming lens (The Examiner interprets this as two different memories – an image memory for storing the digital image data and an image memory for storing a lens characteristic relating to the image forming lens – both are provided by

Enomoto); and a lens characteristic correction unit for performing, by using the stored lens characteristic of said image forming lens and a position of a frame image photographed, a process of correcting a deterioration of image quality derived from said image forming lens upon the entire digital image data, wherein said image quality deterioration correction by said lens characteristic correction unit is at least one of a chromatic aberration of magnification, defocusing and a decrease in marginal lumination.

9. As for **claim 2**, Enomoto discloses, as stated in column 17 (lines 32 – 42), the digital image shooting device according to claim 1, wherein said image quality deterioration further includes a distortion aberration.

10. As for **claim 4**, Enomoto discloses, as shown in figure 3 and as sated in column 11 (lines 35 – 52), the digital image shooting device according to claim 1, wherein said lens characteristic correction unit (56) performs the correction before the photographing of a next frame or during the photographing of the next frame onward, and the digital image data of the frame upon which correction is performed is stored in said image memory (42).

11. As stated above, Enomoto discloses an image memory for storing the digital image data and a lens characteristic relating to the image forming lens. The Examiner interprets this as two different memories – an image memory (42) for storing the digital image data and an image memory (60) for storing a lens characteristic relating to the image forming lens. As shown in figure 3, the image memory (42) for storing the digital image data immediately supplies the lens characteristic correction unit (56) with the digital image data. Also as stated above, Enomoto teaches that either a digital camera or digital video camera may supply image data to the image processing unit. Therefore, since a digital video camera provides video images comprised of a

series of still digital images, Enomoto discloses performing the correction before the photographing of a next frame or during the photographing of the next frame onward.

12. As for **claim 5**, Enomoto discloses, as shown in figure 3, a digital image shooting device according to claim 1, wherein said image memory is a built-in image recording medium. As stated above, the Examiner interprets the image memory as two distinct memories. Each the image memories (42 and 60) are built-in to the image processing unit.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. **Claims 3, 6, and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Enomoto.

15. As for **claim 3**, Enomoto discloses, a digital image shooting device comprised of three sections: an image capture section comprised of an image taking lens and an image sensor for capturing a subject image into image data, an image processing section comprised of image memories and an aberration correction unit adapted to receive the subject image data and correct aberrations therein, and an output section comprised of a display and photographic printer for receiving the corrected image data and providing the corrected image data in a format for viewing. However, Enomoto does not disclose a process of compressing the digital image data after correction in the lens correction unit. Official Notice is taken that both the concepts and the

advantages of providing an output section that comprises a process of compressing the digital image data after correction are well known and expected in the art. It would have been obvious to compress the corrected digital image data so as to provide digital image data in format ready for permanent storage.

16. As for **claim 6**, Enomoto discloses, a digital image shooting device according to claim 1, further comprising an image display unit for displaying the photographed image (20), wherein an image based on the digital image data which has (see figure 8) or has not (see figure 2) been corrected by the correction process in said lens characteristic correction unit, is displayed on said image display unit.

17. Enomoto discloses a digital image shooting device comprised of three sections: an image capture section digital camera) comprised of an image taking lens and an image sensor for capturing a subject image into image data, an image processing section (14) comprised of image memories and an aberration correction unit adapted to receive the subject image data and correct aberrations therein, and an output section (16 and 20) comprised of a display and photographic printer for receiving the corrected image data and providing the corrected image data in a format for viewing. However, Enomoto does not disclose a storing the digital image data after correction in the lens correction unit in a memory. Official Notice is taken that both the concepts and the advantages of providing an output section that comprises a memory for storing the digital image data after correction are well known and expected in the art. It would have been obvious to store the corrected digital image data so as to provide digital image data in format ready for display or printing at future time.

18. As for **claim 8**, Enomoto discloses, as stated in column 14 (lines 4 – 49), that the characteristics data supply section (60) comprises a memory for storing information about the lens characteristics associated with various camera models, more specifically that the memory stores information about the lens characteristics of a plurality of lenses. However, Enomoto do not disclose that the digital camera comprises a plurality of lenses rather just an imaging lens. Official Notice is taken that both the concepts and advantages of including a plurality of lenses in the digital camera are well known and expected in the art. It would have been obvious to provide a digital camera with a plurality of lenses as a means to provide a camera that can focus the subject image onto the image sensor, thereby reducing image processing.

Allowable Subject Matter

19. **Claim 7** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. **Claim 7** requires, in the broadest reasonable interpretation, that an image of a region, larger than the photographic region confirmed by a photographer, be formed on the image sensor element in accordance with missing pixels provided by the correction result of the lens characteristic correction unit.

21. **The closest prior art (Enomoto US 6, 323, 934 B1)** teaches that an image of a region, formed on the image sensor element, is smaller than a photographic region confirmed by a photographer in that image of a region is corrected in accordance with missing pixels provided by the correction result of the lens characteristic correction unit.

22. **Claim 9** is allowed.

23. **Claim 9** requires at the very minimum a digital shooting device comprising an image forming zoom lens wherein a lens characteristic is provided for the image forming zoom lens at a plurality of focal lengths and wherein the lens characteristic is converted at the plurality of focal lengths to the focal length when the image is photographed.

24. **The closest prior art (Enomoto US 6, 323, 934 B1)** teaches a digital shooting device comprising an image forming lens wherein a lens characteristic is provided for the image forming lens and is stored in a corresponding memory within a correction unit. The prior art teaches that the correction can store lens characteristics corresponding to a plurality of lenses but fails to disclose or suggest an image forming zoom lens providing a plurality of lens characteristics wherein each focal length of the image forming zoom lens provides at least one of the plurality of lens characteristics.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin P Misleh whose telephone number is 703.305.8090. The examiner can normally be reached on Monday - Friday, 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on 703.305.4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703.306.0377.

JPM
September 17, 2003

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600